

RTTY

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EXCLUSIVELY AMATEUR RADIOTELETYPE



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RTTY MICROCOMPUTERS
USERS REPORT INFO-TECH MODEL 200E
A PROM PROGRAMMER FOR 82S23 & 74188 PROMS

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FROM
THE
MAILBAG



MALICIOUS INTERFERENCE

The ARRL thru president Dannalls is appointing an ad hoc committee to study the problem of malicious interference. If your repeater is having this problem contact W0BWJ 1070 Locust St., Denver, CO 80220.

RTTY CLUB HELP

I recently contacted the ARRL as president of the San Diego Teleprinters society. I requested info on films and slide shows available to ARRL affiliated clubs. I received a nice note from K1DYZ Maureen Thompson supervisor, club/training, explaining the films and slides available. A program chairman for your RTTY club is really missing a bet by not ordering some for your club meeting.

COMPUTERS

I know many of my readers are using computers on RTTY and will now use them on ASCII in the ham bands. I own the Apple II with disk drive etc.

ASCII

On March 17, 1980 the FCC approved ASCII for use by amateurs. The following requirements were set forth: the code shall conform to the American standard code for information interchange as defined in American National Standard Institute (ANSI) Standard X3.4-196B.; F1 emission shall be utilized on those frequencies between 3.5 and 21.25 Mhz where its use is permissible and the sending speed shall not exceed 300 baud.; F1, F2 and A0 emissions may be utilized on those frequencies between 28 and 225 MHz where their use is permissible and the sending speed shall not exceed 1200 baud.; F1, F2 and A2 emissions may be utilized on those frequencies above 420 MHz where their use is permissible and sending speed shall not exceed 19.6 kilobauds.

Use of the international telegraphic alphabet No.2 (Baudot code) is subject to the following requirements transmission shall consist of a single channel, five unit (start-stop) teleprinter code conforming to international telegraphic alphabet No.2 with respect to all letters and nu-

merals (including the slant sign or fraction bar); however, in "figures" position not utilized for numerals, special signals may be employed for the remote control of receiving printers, or for other purposes indicated in this section.

The transmitting speed shall be maintained with 5 words per minute of one of the following standard speeds 60 (45 bauds), 67 (50 Baud), 75 (56.25 Baud) or 160 (75 Baud) words per minute. When frequency shift keying (type F1 emission) is utilized, the deviation in frequency from the mark signal to the space signal, or from the space signal to the mark signal, shall be less than 900 Hertz.

Well there it is, let's hear your ideas and problems so we can share it with all the readers.

W4CQI

I received a nice letter from W4CQI Cliff Pittelkau, Cliff states in part of his letter, "one thing I don't agree with entirely is any requirement to use wide shift for ASCII up to 300 baud. I copied ASCII off the air at 110 baud, 170 HZ shift and received very good copy using an old ST-4 (which is not the best even for 60 WPM Baudot) also the Bell 103 modem standard (used on landline) is 200 HZ shift using either 1070/1270 HZ or 2025.2225 Hz tones. I've used a cassette tape interface for a micro-computer using 170 shift up to 600 baud with excellent results." Cliff also in his letter gives the following equation for computing necessary bandwidth for an FSK signal $BW = 2(f_d + 3fk)$ where f_d = deviation, HZ ($\frac{1}{2}$ total shift), fk = rectangular keying frequency ($\frac{1}{2}$ baud rate).

EXAMPLE: 110 Baud = 170 HZ shift

$BW = 2[85 + (3 \times 55)]$

$BW = 500 \text{ HZ}$

The reason for the 3fk in the equation is that for good signal formation at least the third harmonic of the keying frequency, fk , must be transmitted.

TSS20 CORRECTION

I received a letter from Larry, K1-

LPS, Larry explained that the JOURNAL in February, had left out a most critical line in his article. Like Larry says "Murphy's law is still with us". The correction and a diagram is to be found elsewhere in this month's issue.

I will close out my column for this month. I notice from the letters I receive that there are a lot of new RTTYers out there. In the future more space will be devoted to newcomers.

So long for now.....George

CLASSIFIED ADS. con't

KEYBOARD-MICROLOG AKB-1 All RTTY speeds, plus CW with AFSK modulator, buffer and message memories \$399.00 Video Display-Microlog AVR-2 decodes all RTTY speeds plus ASCII and CW. Built-in dual tone demodulator, audio visual tuning indicators plus scope output. Direct hookup to receiver audio for perfect copy \$499. Printer/speed converter interface add \$75. Use your TV with RF modulator or our professional video monitors. 9 inch \$189 15 inch \$279. Brag Tape accessory may be used with any keyboard. Record your message on any cassette tape. Transmit recorded message at any time Only \$75 fully assembled and tested. 110 vac. AFSK demodulator. Hi/Lo tones, normal or invert. Audio in TTL out. Assembled and tested, 110 vac. only \$75. AFSK modulator. Factory set for 2125/2295 may be adjusted for other frequency pairs. Fully assembled and tested, 110 vac. only \$50. Computer PC board GIO double sided plated thru holes uses Motorola 6800 microprocessor with full description and diagrams \$10. Complete parts kit including M6800, M6821, M6810 (2) plus power supply. With complete assembly instructions and application notes \$39. Ask your favorite dealer or order directly from MICROLOG Corp., #4 Professional Drive, Suite 119, Gaithersburg, MD 20760. Visa/MC welcome.

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RTTY Journal

VHF

RTTY NEWS



Mike Stone, WBØQCD
P.O. Box H, Lowden, Iowa 52255

VHF/UHF ASCII APPROVED FOR AMATEURS!

At long last, ASCII has arrived for the Radio Amateur! Section 97.69 was amended to incorporate "American Standard Code for Informational Interchange" (ASCII) on FCC Docket #20777. F1, F2 and A2 8-level emissions are allowed between 28 and 225 Mhz. not to exceed 1200 baud rate. 420 Mhz. and above is limited to 19.6 kilobauds. Any HF RTTY buff will realize the success for ASCII lies in the VHF bands and above for interference-free reception. There is now a "green-light" to incorporate the higher level code into RTTY repeater systems by the VHF enthusiast. The "Chicago Area Radioteletype Repeater System" CARRS group suggests the system they will be using to incorporate RTTY Baudot with RTTY ASCII; they will be using a 200 cycle shift with a 1070 Mark and 1270 Space (separate TU) along with their present 170 shift 2125 Mark and 2295 Space 8audot communications system. Those on ASCII can utilize the same system without even bringing up the "8audot teletypers on autostart". W9RI John in Rock Illinois (BSTS Club) is working on a similar system to bring the local "computer" buffs into the ever growing RTTY system. Let the JOURNAL know what your group is planning and doing on this matter.

N4ML, Milt founder of the YAESU "Fox Tango Club" is looking for RTTYers in the West Palm Beach area that can answer the questions from his mailbag from interested teletypers. Write Milt Lowens, 248 Lake Dora Dr., West Palm Beach FL 33411. The VHF RTTY Repeater listing in the February issue left out "WA4WHD/RPT" in Hollywood, FL which covers the West Palm Beach to Homestead area. Ed Webb, W4FQM reports that the sponsoring and (get this) RTTY group Florida Amateur Tele-

type Society (F.A.R.T.S.) is adding an HF link on 14.095 inputting and regenerating on the 146.100/700 Mhz. circuit. At 45 baud and 180 watts ERP it certainly can't be neglected! WO-ULK, Ted Riemann in St Louis, Mo., is looking for 2 meter SSB-RTTY contacts at 144.150 and also on 432 Mhz. WOKIT George Somerville in Newburg, MO is trying Infotechs' 555 timer circuit for his Microlog RTTY system for uni-form output and wonders if anyone else has done the same? Did anyone find an improved version of WBOYUI's article on AFSK'ing the Yaesu FT-101 series? Another addition to the VHF Repeater listings is "K1EVU/R" in Portland, ME area. It is located in Westbrook, ME area and is on 147.75/.15 Mhz. ARRL Bulletins and other notes of interest are passed regularly along with a Thursday night "pix net". The repeater is unique in that it can be voice activated by touch tone sequence. The repeater is owned and operated by W1UTD and K1EVU and is an open repeater.

K6AEP, Clay in San Jose, CA has designed a working basic computer system that is expandable much beyond the TRS-80 and like systems on a single board for around \$80.00. Write Clay for details or catch him on his SWTP-6800 NET on 14.250 Mhz. Sunday evenings at 0200 GMT. Update in the San Francisco area; Amateur Communications Society, Inc. has a fully regenerated 45.45 baud/170 hz. shift RTTY Repeater "K6GWE/RPT" (San Pedro Ridge site) and contact WB6EFY for any club information. The operating frequency is 147.93/.33 MHZ. K6VCO, Stuart Neblett reports that the ACS group also has a voice repeater on 146.10/70 Mhz. Thanks for the updates! KOQVF Still has ST6 type circuit boards (see last months Issue) and KOVKH is selling a lot of Model 70 Infotech 8audot/AS-

CII CONVERTER SYSTEMS. (See December issue).

Ted Peterson, W7WWG puts out a very nice RTTY newsletter full of good information called "F1" Magazine. Their repeater is on 147.78/.18 and the club is trying to link with the Seattle RTTY repeater system on 220 Mhz. WA7CYP and N7RY are working on incorporating ASCII with the present Baudot system. Ted's address is: POB 10672 Portland, OR 97210. AMRAD group is still growing strong down in McLean, Virginia area. They are really into computers and sponsor the WR4APC/R" repeater on 147.81/.21 Mhz. Paul Rinaldo is one of the fellas who was bound and determined to keep pushing the FCC on ASCII. Thanks Paul, W4RI. (W4RI/W9RI-both RTTY computerists-just coincidence?) W9RI has an article in this issue on hooking a teletype model 33 unit to a TU loop system.

The state of the art continues to produce better pieces of gear as demonstrated by R080T's revolutionary model 800 RTTY-ASCII-Morse and SSTV Keyboard/Terminal system. Retailing at \$845.00 is a small fortune, but when compared with using the separate Morse, RTTY and SSTV systems the real value is demonstrated. Write Robot Research, Inc. 7591 Convoy Ct. San Diego, CA 92111.

See you next month!
Mike.



TAMMY ABERNETHY, KA88QH, 110 Far View Rd. SW, N. Canton, OH 44720. Winner of the 1979 Holiday Art Contest of 1979. Her winning picture will be on the cover of the December 1980 issue of the JOURNAL. Congratulations Tammy....

COMPUTERIZED RTTY

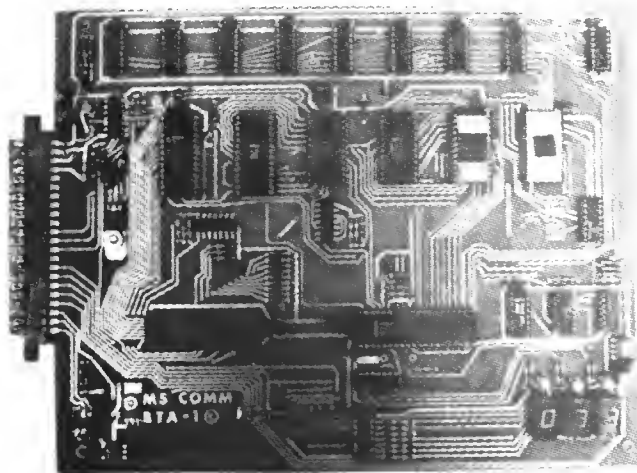
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Ms Comm

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RM-300 THE COMPLETE TU AND AFSK Generator on one board. Your CWID generated from on board PROM. Thinking of VHF RTTY through your local repeater? This premium quality is ideal. Complete documentation \$2.00. RM-300 board just \$21.25. Complete kit (less PROM) \$71.25. PROM programmed with your call \$7.00. RP-400 power supply (+5v & -12v and dual loop supply) board only \$21.25. Complete kit with heavy duty transformer and solid state auto start relay \$71.25 Cal residents add 6%. Postage and handling \$1.00. Eclipse Communications, 5 Westwood Dr., San Rafael, California 94901.

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WANTED: MODEL 26 TELETYPE, Working or not (with synchronous motor only). State price and condition. Richard R. Peterson, WA6NUT, 657 Circle Drive, Santa Barbara, California 93108.

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FOR SALE-HAL ST6000 TU With CRT display. Factory, out of box condition, used only for testing computer-mint! \$550 firm, shipped immediately. John (603) 547-2035 after 6. PO Box 225 Greenfield, New Hampshire 03047.

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by professional. \$175. Bill Ross, W4MSI 2990 Alton Drive, St Pete Beach, FLA. 33706. 813-360-8501.

LOOK- AT THE MS COMM BTA-1 AD THIS issue! ASCII-BAUDOT Micro and much more! Kit \$325. Built & tested \$395. QSL brings all details and specs. MS COMM Assoc., Box 225, Greenfield, 03047

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SELL OR TRADE: HAL 2010 DUAL KEYBOARD with buffer \$325, M28 tying, reperf/TD/table \$135. WANTED: 3 speed gearshift for 28KSR-George Churpek, N6FL, B39 Cambon Circle, Ojai, CA 93023. Tele. B05-646-5296.

THE RACK LINE BY DATAPRO, For individual or repeater these versatile uniform boards will do the job right. All boards are 4 1/2 x 6 1/2 inches, (same as the DT-600 TU Boards), G-10 one oz. copper, solder plated with a 22 pin edge connector included. CW ID SYSTEM. Interfaced for digital, FSK or AFSK keying, 10 minute timer, variable speed (5-25 WPM), 12 or 5 volt use. Kit was \$37.90 each NOW ON SALE FOR ONLY \$27.90, Board alone \$8.95. CW ID Above CW ID but without timer and interface components. Board is the same as that for CW ID SYSTEM. Kit was \$21.95 NOW ON SALE AT \$19.95. UT-2B SPEED CONVERTER, Board has transitional auto-start, on board clocks, parallel buffered outputs, FSK keying output. Boards has two clocks for basic speed conversion (one speed per clock, for multi speed see XB-6 clock board.) May be used for ASCII with slight modification. Complete kit \$39.49, Thru plated board alone \$14.95. TU-LOOP POWER SUPPLY, If your looking for the ideal loop supply for your new demodulator board this is it. This board has provisions for a plus and negative supply (12 or 15 volts), A 5 volt supply, and a high voltage loop supply. All supplies need not be mounted on the board if operation of one of the supplies is not desired. Loop supply has provisions on board for keying transistor. All supplies have LED's for indication of power. Complete kit (plus and Minus 12v, plus 5 volt and HV 250 volt loop supply) \$56.50, board alone \$8.50. DUEL XB-6 UART CLOCK BOARD. Develops 6 Baud rates for each side of UART. Complete crystal control Good for UT-2 and UT-4 systems. Kit \$27.85, board alone \$8.95. CRYSTAL CONTROLLED AFSK BOARD. Supplies rock solid tones of 2125 for mark and 2295 or 2975 for space. Avoid drift with crystal control. Complete kit \$29.50, board alone \$8.95. MULTI VOLTAGE POWER SUPPLY M4D supplies plus and minus 12 volts at a constant 800 ma and 5 volts at 800 ma. 5 volt supply is crowbar protected to avoid overload of chips. All supplies have LED indication for voltage presence. Complete kit \$33.95, board alone \$8.50. M4D3

same as above but with 5 volt supply expanded to 3 amps \$51.95. MS-512 SINGLE BOARD POWER SUPPLY, where space is at a premium this single voltage supply fits nicely. Voltage is determined by voltage regulator. Supplies vary from 5 to 24 volts with change of regulator and transformer. All parts including transformer fit on the 2 1/2 x 4 1/2 board. Current output lamp. May be configured for negative or positive supplies. SPECIFY NEGATIVE OR POSITIVE VOLTAGE, 5, 6, 8, 12, 13.2, 15, 18 or 24 volt. Complete kit (5-18 volt \$13.95) (24 volt \$14.95) board alone \$5.75. AVAILABLE FROM DAYTAPRO ELECTRONICS, 3029 N. Wilshire Ln., Arlington Hts, IL 60004. Add \$1.00 for shipping. Use your VISA for added convenience. PHONE 312-870-0555 evenings. SALE! SALE! SALE! SALE! RTTY ID GENERATOR Accepts 5 or 12 volt supplies, 31 RTTY characters available, (please include letters, figures, spaces, etc.) Your preprogrammed answer-back must be supplied with order. EXAMPLE DE (YOUR CALL) (YOUR NAME) (CITY & STATE). See Jan. 1980 RTTY JOURNAL for complete description. Board is same size as popular ST-6 boards. Was \$34.99 now priced \$24.95. Board alone was \$8.50 now \$6.00. Please add \$1.00 for shipping. Daytapro Electronics, 3029 N. Wilshire Ln., Arlington Hts, IL 60004. VISA accepted. Phone 312-870-0555. Now keeps sending while you CW ID. The MS-738 AFSK tone mixer is the VHF answer. See Nov 1979 RTTY JOURNAL for full description. Kit \$10.75 plus \$1.00 shipping. Daytapro Electronics, 3029 N. Wilshire Ln., Arlington Hts, IL 60004. VISA ACCEPTED. UT-4B BOARDS, SEE NOV 1978 RTTY JOURNAL for users report. Complete speed conversion and many additional extras as seen in 1974 RTTY JOURNAL plus other additional modifications such as parallel buffered outputs, transitional autostart and more. Slight modification for ASCII use. Price \$18.95 each plus shipping. See our other ad in the classified section for M4D power supply and XB-6 crystal clock specifications. Daytapro Electronics, 3029 N. Wilshire Ln., Arlington Hts, IL 60004. VISA accepted. Phone 312-870-0555 evenings.

The 82S23 and 74188 PROMS are 256 bit permanent data storage devices organized as 32 independently selectable 8 bit "words" or "bytes", and thus are said to have a 32XB format. This means that for every one of the possible combinations (32 in all) of either 5 volts or zero volts ("1" or "0" respectively) placed on the address lines (A0-A4), there exists a unique 8 bit "word" or pattern of output voltages present on the 8 output lines B0-B7. The way in which this data on B0-B7 is used or "read" can be varied. For example, 32 seven or eight bit ASCII characters could be stored, and read out a character at a time on the parallel outputs, or, one could use another device to select bits B0 thru B7 one at a time and cycle the address lines A0-A4 through their 32 combinations. This yields 8 serial chains of 32 bits each, and is a system that is used in a popular RTTY CW I/Oer (the RM100)

The pattern of "1"s and "0"s needed for any specific project is called the "truth table" or "listing" of the PROM. It is just a list of the bits present at each of the 256 sites, that is, a "1" or an "0" at each. Of course the first task in "programming" a PROM (or establishing a unique 256 bit pattern) must be to decide what message or data is desired to be stored, and how to get it "read" out. A 5 bit binary counter is often used to apply voltages to the address lines A0-A4, a process termed "addressing" the PROM. Remember that the address of each bit (not word) involves selecting one and only one of the output lines B0-B7 in addition to the presenting the proper "word address" on A0-A4, should you desire independent use of each bit as for a CW I/Oer. A 74151 or similar one of eight selector chip will do that for B0-B7.

The value of each of the 256 bits is established by the presence or absence of a small bit of fine wire or other fusible material which controls the level of the output at each bit site. Having obtained a PROM "listing" or "truth table" from an article or by design, we then need a way to "blow" the pattern of "1"s and "0"s into the PROM, by overloading and melting the fine wire at those sites

whose value we want to change. Proms come with all "zeros" or all "ones" at each site, depending on the type of PROM you buy. Care is needed, since once a site is "burned" to the opposite value, you cannot return it to its original condition.

The PROM burner shown works well with the 82S23 and 74188 PROMS. These chips are similar, EXCEPT for the original states of all of the bits. The 82S23 is originally all "0"s and when you burn a bit it goes "high" to "1". The 74188 is originally all "1"s and if you burn a bit it goes to "0". By looking at your truth table or listing, you select the PROM needing the least alteration; if your list shows mostly "1"s then use a 74188 and blow the smaller number of bits low-if most of the bits are low, use an 82S23. If you have about as many "1"s as "0"s then pick the cheapest available PROM Hi!

73 Mike N7RY

NOTES AND PROGRAMMING INSTRUCTIONS

1. 82S23 comes "ALL ZEROS", you burn bits HIGH. 74188 comes "ALL ONES", you burn bits LOW.

2. The eight output lines B0-B7 (word output) are open collector outputs, so you need a "pullup" resistor from each to +Vcc to get voltage output.

3. STEPS IN PROGRAMMING A BIT

A. set address switches S1-S5 to proper address (thus putting proper word address on A0-A4).

B. set bit select switch S8 to the desired bit (1-7) of the address selected in A. Set S6 to "read".

C. Check LED to be sure bit is in original unaltered state, if not, check your address steps A & B before continuing!

D. Set S6 to "program" and pulse S7 "burn" momentarily, no longer than 1/2 second (milliseconds are enough). (if S7 is a microswitch, one fast click!)

E. set S6 to "read" and verify that bit has changed state. If not, repeat step D several times, leaving several seconds between "burns" to allow for chip thermal cooling.

F. return to A and repeat the sequence until all bits needed changed are programmed.

4. It is advisable to put S7 in a special position on chassis or board such that it is not inadvertently hit

while S6 is in the "read" position. This puts +18 volts on the chip with the chip enabled (pin 15 grounded) and also puts 18 volts across the LED and can destroy both. (I use a micro-switch at right angles to board top, so it won't be closed if I drop something or rest my hand on the unit).
5. If problems occur, give me a note on 3627.5 KHZ (mark) and I will assist in debug?/deglitching.

73 de Mike N7RY.....

CLASSIFIED ADS: con't

FOR SALE: RTTY OEMODULATOR, designed especially for the reception of short wave RTTY signals with various types of speeds and shifts. The PPL circuit is adapted automatically to the shift of the station received! Printing usual stations like press, military, amateur, diplo, weather, aeronautical telex, maritime, etc., is rather easy with this LEO-controlled unit. Features: switchable audio filter; auto-start relay; power supply 220 V AC 50 Hz; outputs: loop supply for mechanical RTTY machine, and/or TTL-compatible for VOU. Price, including packing and surface mail postage to anywhere in the world, DM 420.00 or \$240.00. Some more information is airmailed to you for DM 5.00 or \$3.00, this amount is credited on the final price of the unit if you ordered later on. Joerg Klingenfuss, Panoramastrasse 81, Hagelloch, D-7400 Tuebingen 7, W.Germany
FOR SALE: 4th edition of the "LIST OF RTTY STATIONS IN FREQUENCY ORDER", now contains more than 2800 frequencies of commercial stations like press, aeronautical, weather, telex, military, diplo, maritime, etc. on shortwave. Schedules of around 100 news agency stations are also included. This offset printed list is airmailed to you for \$15.00 or 39 IRC from Joerg Klingenfuss, Panoramastrasse 81, Hagelloch, D-7400 Tuebingen 7, West Germany.

ATTENTION COMPUTER OWNERS-PROGRAMS needed for TRS-80, Apple, Pet, etc. Create at home in your spare time. We need programs for education (pre-school up), household aids, utility programs, games programs for Amateur Radio, for small business, etc. Unlimited earnings! Write for details: Bill Gosney, WB7BFB, Micro-80 Inc., Division of Software International, 2665 N. 1250 East, Oak Harbor, WA 98277.

RTTY-DX

SKIP PRINSEN WB6CYA

3611 Merrimac, San Diego, Calif. 92117

714-276-3182



Greetings to all....

With the winter months behind us more and more stations are getting ready for the summer DX activities. 8ARTG will be history as you read this, hope to meet many of you during this event.

The DXCC Honor Roll will again be printed in the July/Aug issue. Please don't wait until the last minute to give me your inputs. I have already received several. If you receive any last minute cards a short note or phone call to me will do nicely. I must have your inputs by late May, so don't wait too long. Also, do not mail your inputs to the JOURNAL office they will be remailed to me if this happens thereby delaying matters. A change from the past will be that your inputs will be carried over for six months.

The only DX news that I have this month is that Ros, I8AA will be operating 9A1ONU in San Marino during the 8ARTG contest.

73 de Skip.....

AWARDS SECTION

W.A.C all on 20 meters Nr.82 dated 22 Feb.80 to ISFLN, Luciano Fusari.
W.A.C all on 20 meters Nr.83 dated 17 Mar.80 to DL6Z8 Marc Schmidt.
DXCC # 45 ISFLN, Luciano Fusari had his 1st RTTY QSO on 10 December, 1978 and had received 105 cards by the 2nd of February, 1980, a very remarkable feat and one that I doubt has been matched.

"KONTEST KORNER"

8ARTG	22-24 March 80	Feb.80
VK/ZL/Oceania	14-15 June 80	coming
SARTG	16-17 Aug 80	coming
CARTG	18-20 Oct 80	coming
WAEDC	November 80	coming

HAM HELPS

Harvey Renfeldt, W6FHY writes and needs info on hooking up the HAL ST6 to the Heathkit H-8 microcomputer. Write to him at: 18620 Mingo Road, Apple Valley, CA 92307.

W7ATF and N7RR get together Saturdays at 1800 UTC and Sundays at 20:00 UTC to exchange ideas on the H8 And H89. They operate on 14265 Mhz, drop in and join the group.

On 14.0825 Mhz is a group of RTTY-ers that are interested in computerized RTTY using the H8 they are on A/S crystal controlled operation.

First world-wide slow scan television contest 1980 of German Amateur Radio Teleprinter Group (GARTG).

1st part 5th April 1980 6-2400 (GMT).
2nd part 11th October 1980 6-2400 (GMT) Contest manager: Wolfgang Punjer, DL8VX, POB 90 11 30, 2100 Hamburg 90, Fed. Rep. Germany.

RESULTS OF AUSTRALIA-OCEANIA & ASIA RTTY FLASH CONTEST.

1.IT9ZWS	26.735.200
2.I8AA	24.628.768
3.DJ6JC	23.059.000
4.G3UUP	15.585.200
5.HA5K8M	11.303.000
6.I2DNI	10.549.400
7.ISORUH	9.899.650
8.UK4FAD	9.753.100
9.I5FZI	9.104.200
10.JA6GIJ	6.361.600
11.I1TXD	5.281.200
12.OH2CQ	2.957.000
13.WD8IUP	2.726.100
14.I5C8F	2.230.200
15.OZ2X	1.450.900
16.DF7F8	1.426.300
17.OK3RMW	1.378.200
18.OK3CNJ	884.520
19.OK28JT	571.400
20.VK2EG	390.300
21.G3RDG	114.400
22.OK3R8J	108.800
23.JA8ADQ	39.600
24.DK4IS	6.800
25.OK1KWN	1.000

S.W.L.1.H.8allenberger	24.394.900
2.OK1-20677	6.451.550
3.OK2-21478	2.739.600
4.OK2-21478	70.000
5.G 10 1669613	44.050

FROM CARTG NEWSLETTER

The 20th annual CARTG RTTY DX "NEW DECADE" sweepstakes will take place on the weekend of Oct 18-20, 1980. Rule and award list will be available in June. It is proposed to have an ASCII class this year, so be sure to send your SASE for copies of the new rule sheet. Will be looking for YOU in the 1980 "Big Smoke"! Good Luck!

Bill Storer, VK2EG writes that the Annual RTTY DX Contest sponsored by the Australian National Amateur Radio Teleprinter Society has split from the CW/Fone VK/ZL contest and the 1980 contest for RTTYers exclusively will take place on 14-15 June. Awards will be Certificates issued for 1st, 2nd and 3rd on a world basis and also on a country basis. Mark your calendar. CARTG has chosen Bruce Balla, VE2QO to receive its 1979 "Merit Award". Congratulations Bruce!

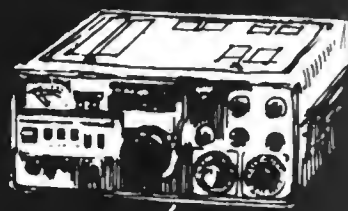
ON CONTESTS by Paul Johnson, KOPJ.

As more stations go to Micro processors, the need to standardize contest message format becomes even more evident. If you look at 8 major contests, you see that all require RST, seven (all but one) require serial message number, three require GMT, three require zone, two require name and one each continent or QTH.

It is understandable that each contest sponsor wants his contest to be unique. But to make each contest unique by such a variety of message formats, actually penalizes the state of the art operator who is using a micro-processor or other automatic device, and causes general confusion among the amateur ranks. I suggest that sponsors make their contests unique by varying scoring, time periods and band usage, but use a standard contest message format.

I suggest a message format containing: a serial message number, RST, GMT time and zone. This format covers all the requirements for scoring every sponsors contest. If you know a stations prefix and zone you definitely know the continent and can come very close to the QTH. The sponsor is not losing a thing, but all contest operators are gaining. And who are contests for? The participants of course.

TRS-80, PET, APPLE, SORCERER Ham Interface Systems



TRS-80

- CM80 Send / Receive CW & RTTY in cabinet as illustrated \$279
- M80 as above less cabinet \$149
- M800 adds advanced RTTY (split screen) to CM80 / M80 \$99

PET

- M650 Advanced RTTY (split screen) & CW in cabinet as illustrated \$210
- M65 Send / Receive RTTY & CW (cabinet Not included) \$129

APPLE

- A650 Advanced RTTY (split screen) in cabinet as illustrated \$210
- * Advanced CW (split screen) available soon!

SORCERER

- CS80 Send / Receive CW & RTTY in cabinet as illustrated \$279
- S80 As above less cabinet \$149

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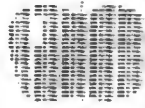
We are experiencing telephone difficulties, please keep trying.

NEW!
for your M800
RITTY RITER®

A computer assisted RTTY graphics and text editor for the TRS-80

This powerful program allows cursor editing of both text and "picture" files. The edited file may then be transmitted over the air or printed locally using either a Baudot or line printer using the M800 RTTY system. Files may be saved on cassette and replayed or modified at a later time or date. This program revolutionizes RTTY art!
REQUIRES 16K Laval II TRS-80, M-80 and M800.

\$49.95



DISABLING THE ANSWER-BACK ON THE SIEMENS T-100.

Crawford MacKeand, WA3ZKZ
115 South Spring Valley Road
Wilmington, DE 19807

The Siemens T-100 is a page printer in a compact package with tape punch and reader, which is in very common use in Europe, though not often encountered in the USA.

One problem that I encountered in putting my T-100 on the air was the interference caused by the tripping of the WRU unit on reception of an upper case D. A recent discussion DJ4SS Siggy, indicated that the fix I developed would be of interest to others and a note describing the procedure follows. The job is a small one and should take half an hour.

1). Loosen and remove the two screws holding the lamp and switch unit in order to have access to the levers. One screw is about 1/2" (1cm.) to the left of the Repeat Key, the other is about 1 1/2" (4cm.) behind the lamp switch key. The unit can now be moved to one side, disconnecting the wiring at the terminal block if necessary.

2). Referring to the sketches, find the lever 154. First remove the circlip from the end of the short shaft "A". Lift the pull bar so released and tie it out of the way with a piece of wire to the carriage rail.

3). Remove the small return spring connected to point "B" of the lever 154. The other end is hooked into the second hole (from the left) of the spring anchor bar about 1" (2.5cm) behind the shaft carrying lever 154.

4). Remove the two screws holding 154 to the shaft and then lift out lever 154.

5). It is now necessary to remove the extension 154a of lever 154. As the lever is hardened steel it will be easiest to remove it by careful grinding at point "C".

6). Replace lever 154 and its holding screws; replace the return spring using needle-nosed pliers. It may be best to make a wire hook to assist in this step. Replace the pull bar on "A" and replace the circlip. Replace the lamp and switch unit. The T-100 will now respond only to local trips of the WRU.

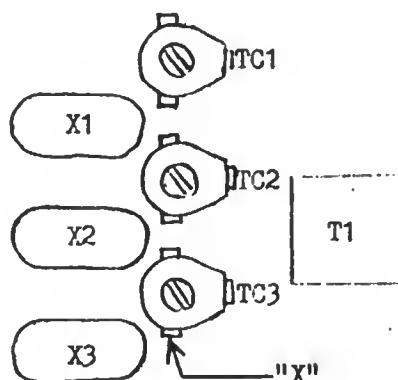
Con't. on page 13

MURPHY STRIKES AGAIN.

In the February 1980 issue of the RTTY JOURNAL a sentence was left out. Naturally it had to be one of the most important to the article. In the article More TS-520's by Larry Filby, on the bottom of page 4, instead of "This will be the trimmer tab that faces the front etc." The sentence should read, "This will be the trimmer closest to the front panel. Carefully solder a wire to the trimmer tab that faces the front of the TS-520S. This can be done etc."

Please correct your copy. In order to make sure that the correct wire will be found Mr. Filby has sent us a drawing of just what is meant.

Our apologies to one and all.
DEE.....



Carrier Unit (X50-0009-01)

Point "X" is junction of TC3 and C6

CLASSIFIED ADS. con't

FOR SALE: 3rd edition of the "LIST OF SPECIAL RTTY AND CW ALPHABETS AND CODES", now contains code tables for Arabic, Cyrillic, Hebrew, third shift Cyrillic, Greek, Korean, Amharic, and Thai 5-units CCITT3, and SITOR codes. Detailed descriptions of the "decoding" of Arabic and Cyrillic transmissions received on a normal machine and of ARQ/SITOR/FEC error protection systems are included. Arabic, Cyrillic, Greek, Hebrew, and Japanese Morse codes are also listed. This off set printed list is airmailed to you for \$11.00 or 2BIRC from Joerg Klingenfuss, Panoramastrasse 81, Hagelloch, D-7400 Tuebingen 7, West Germany.

LOOKING BACK

to

"TAPE OFF THE FLOOR"

WBDEF

R. Wilson, 4011 Clearview Drive, Cedar Falls, IA 50613

FROM APRIL 1954



VE3GL, Rube Hadfield, reports 2 hour solid copy with F7BM in Paris on 14-150 kcs.

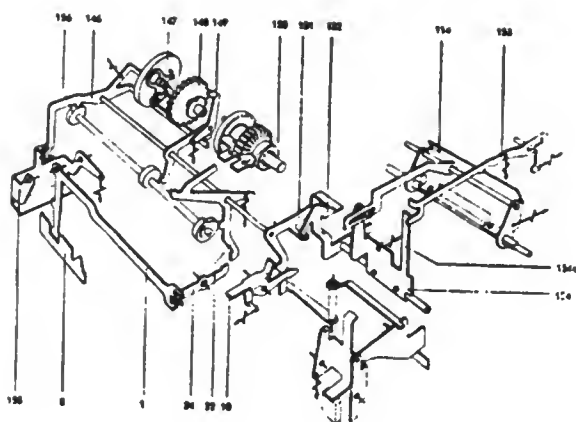
...This is W40YG, W40YG, W40YG Louisville, Ky. testing RYRYRYRYRYRYRYRYRYRYRYRY. This is W40YG.

Flash from China! Confucius say: "RTTY Ham who tinker with distributor may have bad time."

"Left W9BP/WRRR to return to WOBP for a short visit and went on air during sweepstakes without a copy of January RTTY, and WOW what activity-Felt like the proverbial sparrow that flew into a badminton game before I could get free I had exchanged messages with W60WP, W6AEE, W9SPT, W8BL, W3PYW, W8HP and W9THE".

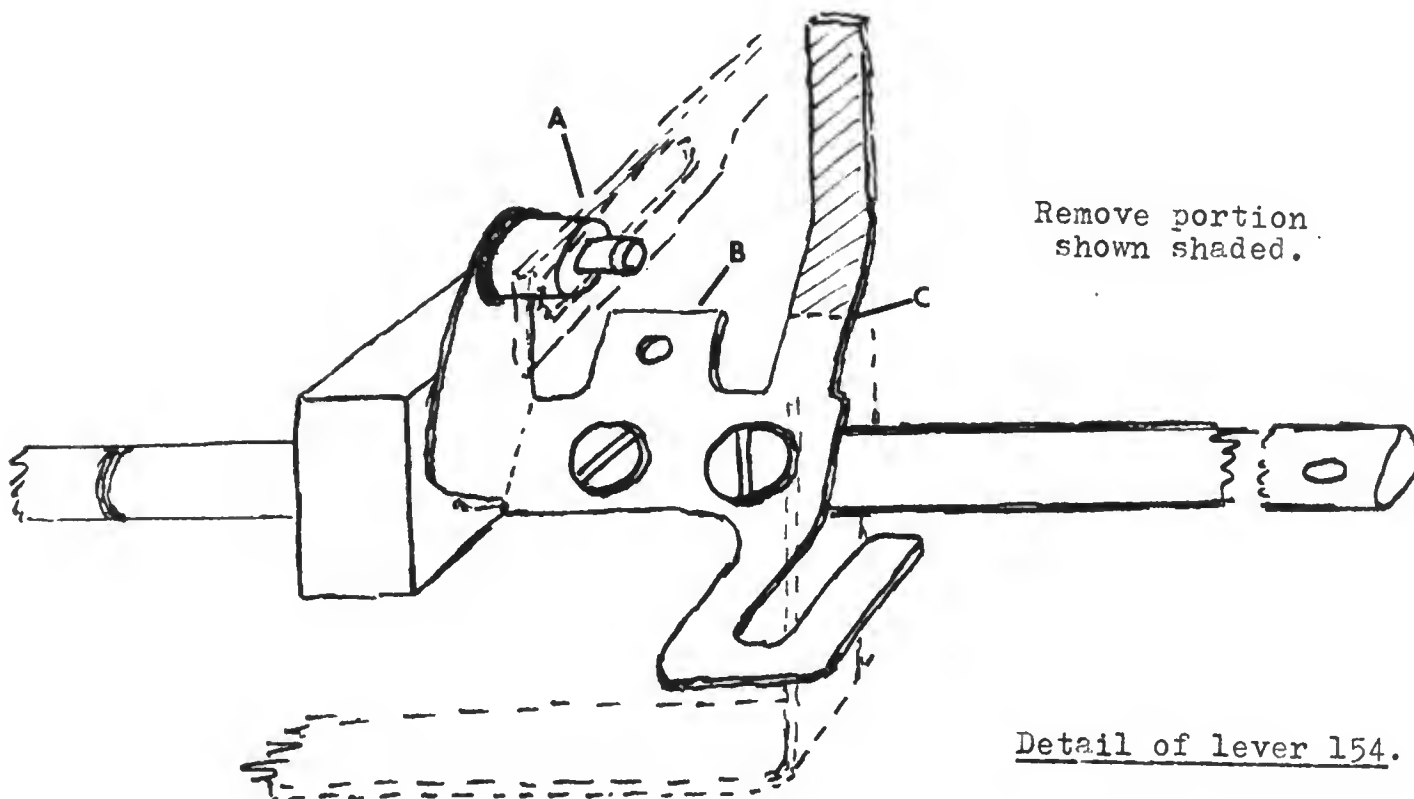
-73, Beep
Beep is happy that he got his old call W9BP back again for Rockford, IL. where he spends most of his time now. Any similarity to his initials BP or WOBP (ex W2BP) is purely intentional. Starting as a spark coil "Brass Pounder," then, "Bum Phone" he has advanced to the sublime degree of "Button Pusher."

TIRED OF "THE QUICK BROWN FOX ETC?"
Many years ago the JOURNAL printed an alternative as follows: Pack my box with five dozen liquor jugs. Any one out there have another?



When the code combination "X" (who are you) arrives, pull bar 153 is operated by function bail 114. A lug of this pull bar hits against extension 154a of lever 154 which is thereby turned to the front. This motion is transferred by lever 152 to lever 151 which is pivoted in a clockwise sense.

Tripping answer-back unit in distant machine.



Further details are to be found in the RSGB Teleprinter Handbook by Goacher & Denny G3LLZ and G3NNT, publ. RSGB 1973.

RTTY MICROCOMPUTING

Clayton W. Abrams, K6AEP
1758 Comstock Lane
San Jose, California 95124

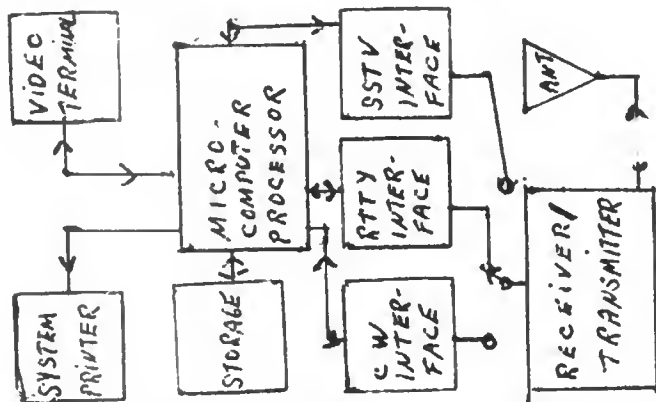
One of the most exciting developments in Amateur Radio is the use of Micro-computers for Amateur Radio. In my various discussions on this subject over amateur radio I have found many misconceptions on what they are, and how they can be used. In this column I would like to give examples on how they can be used for amateur radio, in a straight forward manner with a minimum of technical jargon.

You are probably interested on how I am qualified to discuss this subject. I am an electronics engineer having worked in the computer industry for the past 15 years. I've published numerous articles in, "73", Ham Radio and other magazines on micro computer application.

When most Hams think of micro-computers their first reaction is why do I need one? Let's try to answer in the remaining portion of this column.

A micro-computer in a Ham radio application is a box which allows the reception, transmission and logging of amateur radio contacts. They are very general purpose in their design, and by the use of a program can be customized to perform a specific task. In some cases they can replace certain pieces of equipment around the shack. In other cases they supplement older equipment.

Let's look at how a well equipped station might apply a general purpose micro-computer system. The following is a block diagram of my station.



Let's examine how one might use such a system. The terminal in all cases is used to communicate to and from the amateur equipment to the micro-computer. By typing the appropriate command into the terminal, the CW, RTTY, or SSTV program is loaded from storage into the micro-computer. The terminal is now the means by which you can communicate with the receiver and transmitter. The computer is now under control of the program.

The terminal in most cases is a self contained ASCII video unit or just a simple ASCII keyboard plugged into a video electronics display.

The printer is usually the most expensive portion of the system and is used to print hard copies of amateur radio contacts or listings of computer programs. A non Ham friend of mine recently purchased a Model 15 printer to list his computer programs. An equivalent modem vinyl printer can cost more than \$500.

The interface boxes shown in the above diagram are just

audio demodulators on the receive end. On transmission the RTTY and SSTV interfaces are audio tones and the CW is a relay closure plugged into the key jack of the transmitter.

I've just described how a micro-computer might be used in an Amateur Radio application. As you can see they don't necessarily replace equipment but supplement it. I found that my station was becoming a clutter of boxes for various types of amateur radio communications techniques.

Micro-computers allow you to combine functions in a single box and change the boxes function quickly by loading from storage a new program thereby changing the boxes function. For example, I can switch from RTTY to SSTV in a manner of seconds by loading a new program off my disk drive and throwing one switch.

In future columns I'll discuss this subject further and give some hints on how you can get started in home computing.

73's Clay.....
Editors note: Mr. Abrams column will not be monthly but will be on a three to four times per year basis. I hope that you will all gain knowledge from Clay.

USERS REPORT INFO-TECH MODEL 200E by Chuck Edwards, W6MNO.
4726 Barbarossa Drive, San Diego, California 92115

This is the report that has been waiting for some time to be completed.

I would like to refer back to the report that I originally wrote in December 1978 on the model 75 terminal unit. This model 200 performs exactly the same as the 75 so far as RTTY is concerned. It will equal the best in printability under adverse or easy propagation and noise.

It will also copy CW and permit you to hard copy CW on your teleprinter/video monitor. Testing this, copy was almost 100%. If the operator is especially careful in tuning his incoming signal the copy is as good as it is possible to get.

Basically, the Morse code feature is contained in a 3870 single chip microprocessor. This chip and associated circuitry makes the copy completely automatic, no variances in code speed.

Another feature is that it will enable use of an ASCII or Baudot printer to ASCII using your model 15, 28, 33 or 35. If you have the model 300 keyboard you may transmit in ASCII or Baudot.

The model 200E is all that an amateur will ever need in the way of terminal unit, there were only two things I wished it had, a loop supply and an auto-start, although I understand that the newest models will have these available. The manual furnished with the TU has an excellent schematic for a loop supply and mine worked beautifully. I asked Info-Tech's Dave Kelce and asked about an auto-start, he sent a very simple schematic and I went to work. It worked like a charm.

This unit is highly recommended as it is now one of my valued RTTY possessions along with my model 35.

CUL de W6MNO Chuck.

DOVETRON



MPC-1000C

Multipath Correction
In-Band Diversity &
AFSK Tone Keyer

Amateur Net: \$545.00

Standard features include CONTINUOUSLY tuneable Mark and Space channels (1000 Hz to 3200 Hz), Dual Mode (MARK or FSK) Autostart and internal high level neutral loop keyer (20 to 60 ml). Both EIA and MIL FSK outputs are provided for direct interface to microprocessor and video terminal peripherals.



MPC-1000CR

Signal Regeneration &
Speed Conversion

Amateur Net: \$645.00

A front panel switch permits internal TSR-200 Signal Regenerator-Speed converter assembly to electronically "gear-shift" between 60, 67, 75 and 100 WPM. All incoming and outgoing signals are regenerated to less than 0.5% bias distortion. Also available with DIGITAL Autostart (TSR-200D): Amateur Net: \$695.00



MPC-1000R/- TSR-500

Dual UART Regeneration,
Speed Conversion, 200
Char. Memory, Word Cor-
rection & DIGITAL
Autostart

Amateur Net: \$895.00*

The MPC-1000R/TSR-500 provides Preloading and Recirculation of the 200 character FIFO Memory, a keyboard-controlled Word Correction circuit, Variable Character Rate, Tee Dee Inhibit, Blank/LTRS Diddle, a Triple Tone-Pair AFSK Tone Keyer and a Character Recognition/Speed Determination DIGITAL (DAS-100) Autostart mode.

*The MPC-1000R is also available without a TSR assembly and functions as a MPC-1000C with a Triple Tone-Pair AFSK Tone Keyer. This "Basic-R" permits future expansion with a TSR-100, TSR-200, TSR-200D or TSR-500 by simply lifting the lid and plugging in the appropriate TSR assembly: Amateur Net (Basic-R): \$595.00

Your QSL will bring complete specifications, or call: 213-682-3705.



627 FREMONT AVENUE
(P. O. BOX 267)
SOUTH PASADENA, CA. 91030

MPC-1000R BY DOVETRON

MULTIPATH CORRECTION, IN-BAND DIVERSITY, SIGNAL REGENERATION,
UP-DOWN SPEED CONVERSION, 200 CHARACTER FIFO MEMORY,
KEYBOARD-CONTROLLED WORD CORRECTION & DIGITAL AUTOSTART



THE MPC-1000R REGENERATIVE RTTY TERMINAL UNIT

The DOVETRON MPC-1000R is a complete Transmit-Receive modem designed for optimum radio teleprinter communications on land, sea and in the air.

Standard features include a high level loop supply and keyer (neutral or polar), EIA and MIL FSK outputs, a phase-continuous AFSK Tone Keyer with three selectable Mark - Space - Shift tone pairs, Mark, FSK & Digital Autostart, Automatic Markhold, an internal RY Generator for terminal unit Self-Test and circuit adjustment, and a Signal Loss Alarm circuit.

The MPC Series is available in six different models to meet your exact requirements.

Complete specifications are
available on your request,
or call 213-682-3705.



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